SUPPLEMENTAL MATERIAL

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Fig. S1: Bright-field images of untreated non-axenic sample (a) and the same sample after sonication (b). Scale bar equals 10 μm.



Negative Control

No SYTO-BC

Bacteria-free diatoms + SYTO-BC

Bacteria + SYTO-BC

Fig. S2: Overlay histogram showing the contribution of SYTO-BC nucleic acid staining of diatoms and bacteria. Negative control (unstained diatoms) set the threshold for FL1-/FL1+ at log 2. Intensity of fluorescence emitted by bacteria-free diatoms stained with SYTO-BC was weaker than the fluorescence emitted by bacteria. The y axes represent the relative cell number.

Table S1: Synthesis of the two methods chosen for the preliminary selection of the standard method for cross-validation of data obtained by FC.

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Description of the method | Sample volume | Correlation coefficient (r) |
| 1. Fuchs-Rosenthal counting chamber | * Fill both sides of the counting chamber under the coverslip with the suspension using a Pasteur pipette. * Count cells in, respectively, 80 small squares under a microscope (objective 60 x). Count cells which touch the upper and left border but not those that touch the lower and right borders. | ≈ 0.02 mL per chamber | 0.998 |
| 1. Spectrofluorometry | * Set blank with culture medium * Set excitation wavelength at 456 nm * Read fluorescence at 681 nm | 1 mL per sample | 0.952 |

Table S2: Average cell concentration of *Amphora* sp. cultured from day 0 to day 16 measured as absolute count/mL by flow cytometry *versus* average cell concentration estimated by spectrofluorometry.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Culture age (days) | Average diatom density (n. diatoms/mL)  by FC | SD | Average diatom density (n. diatoms/mL)  by spectrofluorometry | SD |
| 0 | 1.125E+05 | 5.45E+04 | 7.588E+04 | 2.56E+04 |
| 2 | 8.550E+04 | 3.01E+04 | 8.143E+04 | 3.32E+04 |
| 5 | 1.567E+05 | 8.19E+04 | 1.517E+05 | 9.33E+04 |
| 7 | 1.054E+06 | 4.07E+05 | 1.026E+06 | 6.05E+05 |
| 11 | 9.584E+05 | 3.79E+05 | 8.426E+05 | 2.11E+05 |
| 13 | 3.530E+05 | 1.66E+05 | 3.613E+05 | 1.32E+05 |
| 16 | 5.327E+05 | 2.49E+05 | 6.220E+05 | 4.14E+05 |

SD = standard deviation

*Spearman* R = 0.96; *p* = 0.0028